HAER No. MT-59

Vandalia Bridge Spanning the Milk River northeast of Vandalia Glasgo Vicinity Valley County Montana

HAER MONT, 53-GLA.V,

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic Amerincan EngineeringRecord
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

Vandalia Bridge HAER No. MT-59 (Page 1)

HISTORIC AMERICAN ENGINEERING RECORD

MAER MONT,

53-6LA.V,

VANDALIA BRIDGE

I. INTRODUCTION

Location:

The Vandalia Bridge is located in the NW1/4 of Section 15, Township 30 North, Range 37 East and carries a county road over the Milk River. The

bridge is just to the northeast of the unincorporated community of Vandalia and about 16 miles west of

Glasgow, Montana.

Quad:

Vandalia

UIM:

Zone 13, E - 358950, N - 5357680

Date of Construction:

1910

Present Owner:

Valley County, Montana Valley County Courthouse

Glasgow, Montana

Present Use:

Vehicular bridge for a gravel county road

Significance:

The Vandalia Bridge was determined eligible for listing in the National Register of Historic Places in 1986. The bridge is locally significant for the critical role it played in the rural development surrounding the town of Vandalia and is a key feature in its transportation network. The bridge is also significant as an excellent example of a pin-connected

Pennsylvania through truss.

Historian:

Ion Johnson, Renewable Technologies, Inc., Butte,

Montana, October 1989

II. HISTORY

Between 1900 and 1918, Montana witnessed its greatest population boom due largely to the rush of settlers who took up available land in the eastern two-thirds of the state. The population of the state stood at 243,329 in 1900, rose to 376,053 in 1910, and reached 548,889 in 1920. By the latter date, the state had already experienced two years of drought and the great exodus had begun. The number of farms in the state for the period between 1900 and 1918 increased from 13,370 to 57,677. A number of circumstances coincided with extensive promotional campaigns by the railroads to create this unprecedented rush for land. Passage of the Enlarged Homestead Act of 1909, increased the size of homesteads available from 160 to 320 acres. The development of new farming implements made it easier to operate the larger farms. Dry land farming techniques were developed and actively promoted in areas previously thought to require irrigation. Greater than average annual precipitation fell for much of the first two decades of the century. The prices for farm products climbed steadily.²

A. HISTORY OF THE VANDALIA AREA

In the early 1900s, the U.S. Congress authorized the Milk River
Irrigation project in northern Montana. The main storage reservoir for the
project is at St. Mary Lakes near Glacier National Park. From there, water is
diverted by canal over the continental divide separating Hudson's Bay from the
Gulf of Mexico and into the Milk River, where it follows the course of the

river through Canada and back into Montana. Additional storage is provided by Nelson Reservoir, northeast of Malta. The project was designed to irrigate over 200,000 acres between Dodson and Glasgow. The Vandalia Dam, a diversion dam about 3-1/2 miles upstream from Vandalia, conveys water into the Vandalia South Canal, which channels water to irrigate lands between Vandalia and Glasgow. Because of numerous other projects in the West, the government did not provide adequate financing for the Milk River project, and by 1910, much of the project remained unconstructed. Nevertheless, the population of Valley County increased from 4,355 in 1900 to 13,630 in 1910.

In 1910, the U.S. Congress passed two appropriation bills that played significant roles in the settlement of Valley County, Montana. First, Congress authorized the Department of the Treasury to lend the Reclamation Service \$20 million to help complete reclamation projects already underway. Second, with heavy lobbying from James J. Hill, owner of the Great Northern Railroad which passed through the county, Congress authorized funds to expedite surveying of the public lands in the West. Montana's share of the appropriation was \$80,000, plus a special appropriation of \$100,000 for the eastern part of the state. This would help speed settlement in Valley County because, in 1910, the county still had 2.5 million acres of public lands that had not been surveyed, and therefore could not be opened for homesteading.⁵

A post office had opened at Vandalia in 1904 with Henry H. Nelson, a locally prominent rancher, as postmaster. Not until 1910 did a townsite company and land locating office began doing business, perhaps in anticipation

of the availability of irrigated lands. Vandalia was located along the Great Northern tracks on the south side of the Milk River. Until 1910, Nelson and other area farmers had to send their teams and machinery 20 miles out of the way to cross the river and get to crops on the north side of the Milk.⁶

B. CONSTRUCTION OF THE VANDALIA BRIDGE

In March 1910, the Valley County Commissioners and the county surveyor visited Vandalia to determine the site for a bridge across the Milk River. The newspaper reported that "about thirty ranchers and homesteaders were also there to uphold the petition." The Commissioners granted the petition for the bridge in April and ordered the clerk to advertise for the Vandalia and six other bridges. On June 10, seven bridge building companies presented bids. Low bidder was the Hennepin Bridge Company of Minneapolis. The Commissioners, however, awarded the contract to the Central States Bridge Company of Indianapolis, Indiana "for it was considered the best bid, all details considered."

C. CENTRAL STATES BRIDGE COMPANY

Origins of the Central States Bridge Company date to 1895, when Eugene Runyan and others organized the New Castle Steel Sewer Pipe Company at New Castle, Indiana. In 1897, to mirror the primary market for the products they were fabricating, Runyan's corporation changed its name to the New Castle Bridge Company. The firm expanded quickly with large contracts in Iowa,

Virginia, and Michigan. Around 1900, the company moved its headquarters to Indianapolis where it continued to grow. The company again changed its name in 1905 to the Central States Bridge Company. Prior to World War I, the company did a substantial bridge business in ten states, from Oklahoma to Wisconsin, and across the northern tier of states from Minnesota to Washington. Between June 9, 1909, and June 9, 1910, Central States was particularly active in Valley County, receiving contracts to build nine bridges. The largest of these contracts was awarded on June 9, 1910, when the Valley County Commissioners selected Central States to erect seven bridges, the smallest of which cost \$1052.00 and the largest, presumably the Vandalia Bridge, cost \$9400.00. Four bridges constructed by the Central States Bridge Company were identified during Montana's 1981 statewide bridge inventory that looked at 500 bridges. The other three are pony trusses located in Phillips and Cascade counties.

III. DESCRIPTION OF THE VANDALIA BRIDGE

The Vandalia Bridge is comprised of a 182-foot, pin-connected Pennsylvania through truss main span with three timber stringer approach spans at the south end (22, 23, and 24 feet respectively) and two timber stringer approach spans at the north end (each 30 feet long). The main span rests on tubular piers. The approach spans rest on wood pile piers and wood pile abutments with plank backwalls.

The end posts and the upper chords of the superstructure of the main span consist of two channel sections riveted with a continuous steel cover plate along the upper flanges and with lacing bars riveted along the lower flanges. The hip vertical members are a pair of steel eye-bars; the remaining primary verticals are two channel sections riveted with lacing bars. The diagonal members at the hips are two eye-bars. The middle panels are comprised as follows: the upper half of the verticals consist of two pairs of angle sections riveted with batten plates; the lower half of the verticals and the upper half of each diagonal are eye-bars; the lower half of each diagonal consists of square rods with turnbuckles. The panels to either side of the middle panels are comprised as follows: the upper half of the verticals consist of two pairs of angle sections riveted with batten plates; the lower half of the verticals and the diagonals are eye-bars; the half-length counters are square rods with turnbuckles.

Sway bracing consists of struts built-up of lacing bars between two pairs of angle sections attached to the upper chords, a lower pair of angle sections attached to the vertical members, and steel rod cross-bracing. Top lateral bracing is provided by crossed rods. The portal bracing is in an "A" configuration with wings and is made up of paired angle sections. A bridge plaque on each portal lists the Central States Bridge Company of Indianapolis, Indiana as the builders in 1910. The county commissioners are also named along with W.H. Mann as engineer.

The steel I-beam floor beams are riveted to the verticals below the lower chords. The steel stringers rest atop the floor beams and support a wood plank deck. Bottom lateral bracing is provided by crossed rods.

The guardrails consist of two channel sections, which extend along the entire length of the bridge, including the main span and the approach spans.

IV. FUTURE OF THE BRIDGE

The Vandalia Bridge is owned by Valley County, Montana. The Montana Department of Highways and Valley County are planning to re-align the gravel road which connects the two sides of the Milk River. These plans call for the replacement of the Vandalia Bridge. In accordance with Section 106 of the National Historic Preservation Act of 1966, the Federal Highway Administration and the Montana Department of Highways have executed a Memorandum of Agreement with the Montana Historical Society and the Advisory Council on Historic Preservation under which this Historic American Engineering Record documentation is taking place. The bridge was also offered for relocation with no response.

V. ENDNOTES

- 1. Michael P. Malone and Richard B. Roeder, <u>Montana: A History of Two Centuries</u> (Seattle: University of Washington Press, 1978), 148.
- 2. Fredric L. Quivik, <u>Historic Bridges in Montana</u> (Washington, D.C.: National Park Service, 1982), 30-31; Mary Wilma M. Hargreaves, <u>Dry Farming in the Northern Great Plains: 1900-1925</u> (Cambridge: Harvard University Press, 1957), 16-17.

- 3. Helen Fitzgerald Sanders, <u>A History of Montana</u> (Chicago: The Lewis Publishing Company, 1913), 519-524 and 755-757.
- 4. Big Timber (Montana) Pioneer, 15 December 1910, 1.
- 5. <u>Valley County (Glasgow, Montana) News</u>, 18 March 1910, 1; 8 July 1910, 1; 15 July 1910, 1.
- 6. Roberta Carkeek Cheney, <u>Names on the Face of Montana</u>, (Missoula, Mountain Press Publishing Company, 1984), 277; <u>Valley County (Glasgow, Montana) News</u>, 18 March 1910, 5.
- 7. <u>Valley County (Glasgow, Montana) News</u>, 18 March 1910, 5; 22 April 1910, 4; 10 June 1910, 1.
- 8. James L. Cooper, <u>Iron Monuments to Distant Posterity</u>: <u>Indiana's Metal Bridges</u>, 1870-1930 (Greencastle, Indiana: DePauw University, 1987), 24-25; "Client Index," in the Central States Bridge Company Records, Indiana Historical Society Library, Indianapolis, courtesy of James Cooper via a telephone interview; Quivik, <u>Historic Bridges in Montana</u>, 40; HAER Inventory Cards for Phillips and Cascade counties on file at the State Historic Preservation Office, Montana Historical Society, Helena.

VI. BIBLIOGRAPHY

A. BOOKS

Cheney, Roberta Carkeek. <u>Names on the Face of Montana</u>. Missoula: Mountain Publishing Company, 1984.

Cooper, James L. <u>Iron Monuments to Distant Posterity: Indiana's Metal Bridges</u>, 1870-1930. Greencastle, Indiana: DePauw University, 1987.

Hargreaves, Mary Wilma M. <u>Dry Farming in the Northern Great Plains:</u> 1900-1925. Cambridge: Harvard University Press, 1957.

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Quivik, Fredric L. <u>Historic Bridges in Montana</u>. Washington, D.C.: National Park Service, 1982.

Sanders, Helen Fitzgerald. <u>A History of Montana</u>. Chicago: The Lewis Publishing Company, 1913.

B. NEWPAPERS

Big Timber (Montana) Pioneer, 15 December 1910.

Valley (Glasgow, Montana) County News, 18 March; 22 April; 10 June; 8, 15 July 1910.

C. GOVERNMENT DOCUMENTS

"Client Index." Central States Bridge Company Records. Indiana Historical Society, Indianapolis, Indiana.

Historic American Engineering Record Inventory Cards for Phillips and Cascade Counties. On file at the State Historic Preservation Office, Montana Historical Society, Helena, Montana.

D. SOURCES NOT INVESTIGATED

Book 3 of the Valley County "Commissioners Journal" for the period covering the construction of this bridge is missing.